

the lengthening two or more years later. We have not been bothered by the subsequent deformity of the foot, but there has been a tendency toward loss of motion in the ankle joint and increase of the equinus.

The selection of a suitable case for lengthening demands considerable judgment, as stated by Abbott. In the patients with weak hip muscles it is often difficult to decide whether the bad gait is caused by the weak glutei or by the shortening. Whenever it is necessary we have performed the Ober or Legg operation as a supplementary procedure.

Some surgeons advise against lengthening operations unless the shortening is at least two inches. It is well known that the pelvic tilt will take care of one and one-half inches of shortening, but a shortening of one inch in paralytics may cause more disturbance than two inches in a nonparalytic. Furthermore, it is often difficult to determine the amount of lengthening that is best for the individual. The alignment test and walking with a raise on the shoe is advisable, but I believe that lengthening up to the full amount of measured shortening is advisable because, as a rule, a further shortening takes place up to the time of full growth.

As most of our lengthenings have been done on patients already suffering from a rather severe degree of paralysis, one may experience more trouble should an attempt be made to lengthen a leg without primary nerve disturbance.

The observation on femoral lengthenings is limited to the results of eleven operations. The most troublesome complication has been the restriction of flexion of the knee joint after operation. This I believe is due to a fibrosis in the joint itself, secondary to reaction of the pin near the quadriceps pouch.

With the use of the Hoke traction apparatus, one could perform a lengthening of the femur quite satisfactorily. It may be advisable to place one pin in the upper end of the tibia for the first part of the lengthening and then, if necessary, utilize a pin in the femur for the completion of the operation.

TEMPORAL LOBE LESIONS: DISTURBANCES OF THE VISUAL PATHWAYS*

REPORT OF CASES

By HARRY A. CAVE, M. D.
San Diego

DISCUSSION by Howard W. Fleming, M. D., San Francisco; Carl W. Rand, M. D., Los Angeles.

THE object of this paper is to call attention once more to certain facts that will aid in the correct and early localization of intracranial neoplasms. Since the visual fibers, either primary or secondary, extend almost the entire length of the anteroposterior diameter of the cranial vault, it is evident that the interpretation of signs and symptoms resulting from their interruption by a disease process becomes vitally important and affords valuable information from a localizing standpoint. This is especially true in lesions of the temporal lobe.

LOCALIZATION OF INTRACRANIAL NEOPLASMS

The greatest problem in connection with intracranial neoplasms has been not so much the diagnosis itself as the localization of the lesion once the diagnosis is made. This is especially true in

those cases in which the so-called silent areas of the brain are involved and it, therefore, behooves us as diagnosticians to call attention to and utilize every possible means at our disposal to make as early and as accurate a diagnosis as is possible.

In 1899, thirty-one years ago, Byron Bramwell,¹ in an article on the localization of brain tumors, made the statement that "tumors of the temporosphenoidal lobe, and more especially those of the right side, were of all tumors the most difficult to diagnose because they involved the most silent areas of the brain." Such a statement was the result of the lack of accurate anatomical knowledge of the structures involved in the temporal lobes, namely, the visual pathways.

The anatomical details of the visual tracts were accurately worked out and described by Niessel, Von Magendorf, Archambault, and other anatomists, but it was Adolf Meyer² who in 1907 first realized the clinical significance of these findings. He called attention to defects in the visual fields resulting from lesions affecting the optic radiations during their passage through the temporal lobes where they make a forward and ventral detour around the temporal horn of the lateral ventricle before reaching the calcarine fissure of the occipital cortex (Figs. 1 and 2).

The importance of these anatomical findings was still unrealized as late as 1911, when Foster Kennedy,³ in a careful symptomatic analysis of nine cases of temporosphenoidal lobe tumors from the records of the National Hospital of Queens Square, London, failed to attach any significance to the value of defects in the visual fields, saying that "an examination of the pathological findings suggests the probability of a hemianopsia having been present during life. Five patients were examined perimetrically and the sole abnormality discovered was the concentric contraction of the visual fields, so often associated with severe and especially protracted papilloedema."

Cushing⁴ in 1921, however, in a series of cases with careful perimetric studies, pointed out the early involvement of the visual pathways in temporal lobe tumors. Of thirty-nine cases in which perimetry was possible thirty-three showed homonymous field defects, indicating involvement of the temporal loop of the optic radiation. He also called attention to the partial or quadrantal field defects which may later develop into a complete homonymous hemianopsia as being an early characteristic finding of temporal lobe involvement and urged the use of careful perimetry in all cases where a tumor is suspected.

A further contribution was made in 1925 by Lillie,⁵ who found that in one-third of a series of 168 cases of verified cerebral tumors the tumors occurred in the temporal lobe, and that forty-three out of fifty-one of these cases presented homonymous defects in the perimetric fields.

All four cases here presented had temporal lobe pathology and all of them showed characteristic visual field defects that were of localizing value. In three of the cases localization was possible by the perimetric field defects only, the neurologic

* Read before the General Medicine Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

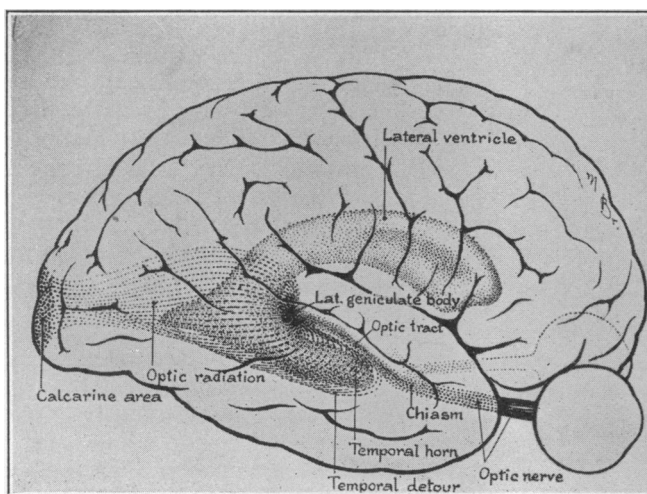


Fig. 1—Geniculo-calcarine pathway from the outer side, showing the temporal detour of the optic radiation. From Cushing, Harvey: *Distortions of Visual Fields in Cases of Brain Tumor*, Trans. Am. Neuro. Assn., p. 378, 1921.

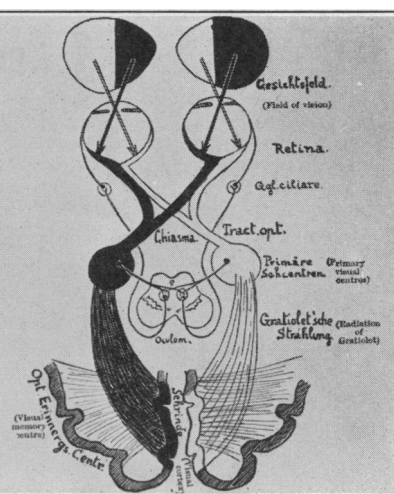


Fig. 2.—Visual tract and pupillary reflex tract. From Bing, Robert: *Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord*, p. 192.

findings being insufficient to make an accurate diagnosis. The fourth case had both field defects and positive neurologic findings.

REPORT OF CASES

CASE 1.—A young man, a clerk, twenty-four years of age, was first seen in November 1928, complaining of headache, nausea and vomiting, diplopia, and difficulty in urination. The patient had been well until ten months previous to this time, when, following a drunken brawl at a roadhouse, he developed severe bifrontal headache with nausea and vomiting. He was taken to a hospital, where he remained for three weeks, during which time he was delirious, violent, unmanageable and disoriented; he was said to have had slight fever. Spinal puncture showed a blood-tinged fluid under increased pressure. At the same time he developed a right facial paralysis and blindness on the right side. His condition gradually improved and the patient went home, but he noticed a marked memory defect; he couldn't remember where goods were in the store or the prices of them, and he would start to make deliveries but would forget where he was going. Two weeks previous to examination his headaches returned, he became drowsy, stuporous and ataxic, and had difficulty in walking and in starting his urine.

Physical examination revealed an undernourished young adult, drowsy and stuporous, poorly oriented and ataxic, but thoroughly cooperative in everything which he was asked to do. Neurologic examination showed no disturbance of cutaneous or deep sensibility. Apart from a peripheral type of weakness of the right side of the face and a bilateral ptosis, there was no muscular weakness. The deep tendon reflexes were active and equal. Babinski's test was negative. He showed an ataxic gait and was incoördinate (+ 2) on finger-nose and heel-knee tests. Romberg test was positive. Pupils were small and inactive (— 4) to light. Convergence was poor (— 3), as were upward and downward movements of the eyes. Fundoscopic examination showed the disks to be hyperemic with blurring of the nasal margins and slight engorgement of the veins. The visual fields showed a complete right homonymous hemianopsia (Fig. 3). An examination of the spinal fluid showed an increase in the globulin content with a total protein content of 60 milligrams per 100 cubic centimeters of fluid, negative Kolmer reaction, twenty-one small lymphocytes and seventeen large lymphocytes per cubic millimeter of fluid with a zone II colloidal gold curve.

Comment.—The diagnosis of brain tumor seemed quite probable, but from the neurological findings alone its location was equally uncertain. The right homonymous hemianopsia, however, definitely placed the lesion on the left side of the brain behind the chiasma. Later the patient developed three generalized convulsions and died. Autopsy revealed a large, cystic degenerating glioma involving the floor and the lateral wall of the lateral ventricle and extending into the left temporal lobe. (The marked pleocytosis in the spinal fluid is a rather unusual finding in a neoplasm.)

CASE 2.—The patient, a housewife, aged twenty-eight, was first seen in October 1928, complaining of headache, nausea and vomiting, with diminution in vision. The headaches, which began four years previously, were of a dull aching character, occurred in the left supraorbital region and recurred at irregular intervals, varying from a week to a month. They usually occurred in the morning, lasted all day and were associated with nausea and vomiting. There was a gradual diminution of hearing in the left ear, with recurring attacks of bilateral tinnitus. Two years later she had a "hard" attack of headache with nausea and vomiting which lasted continuously for five days and was associated with marked diminution of her vision. One year before examination she had a second similar "hard" attack, and a third one occurred two weeks previous to examination. The last attack awakened her in the morning with severe aching pain in the left supraorbital region which persisted continuously for twelve days and then disappeared spontaneously. A physician was called who punctured her left frontal sinus with partial relief, but repetition of this procedure had no effect on the pain. Diminution of vision started with the attack and persisted to the time of examination. Four days previous to examination she noticed a twitching and jerking of the muscles of the left side of her face and left arm for a period of about fifteen minutes.

General physical examination failed to reveal any significant findings. Roentgenograms of the head and chest were negative. Urinalysis was negative. Blood count showed: hemoglobin, 80 per cent; red blood cells, 5,140,000; and white blood cells, 11,900. Wassermann reaction of the blood serum was negative. Neurological examination showed no demonstrable

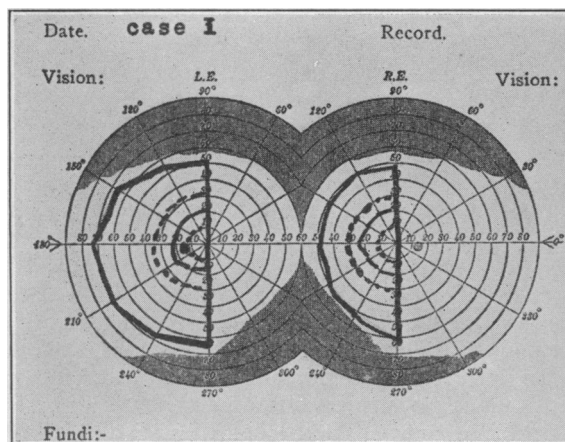


Fig. 3.—Visual field of patient reported in Case 1, showing complete right homonymous hemianopsia.

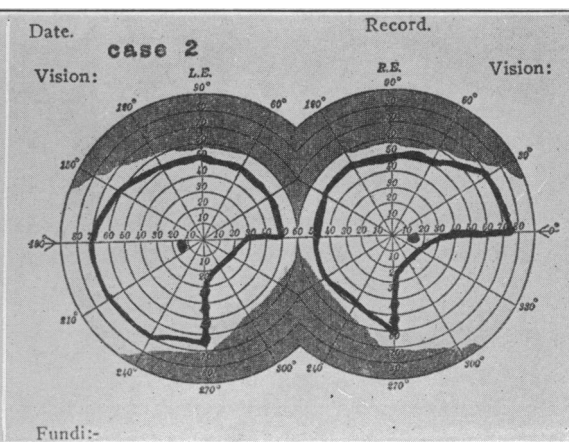


Fig. 4.—Visual field of patient reported in Case 2, showing inferior right quadrant homonymous hemianopsia.

muscular weakness or loss of cutaneous sensibility. The biceps and triceps reflexes were slightly more active on the left than on the right; patellar and Achilles reflexes were equal and active; Babinski reflex was negative. There was slight incoördination on finger-nose and heel-knee test bilaterally. Her gait was slightly ataxic and she had a tendency to lose her equilibrium while standing on one foot. Pupillary reflexes were normal. Ocular movements were good in all directions and there was no nystagmus. Fundoscopic examination showed bilateral acute choked disks, three diopters on the left and two diopters on the right with hemorrhages and exudates. Perimetric examination of the visual fields showed an inferior right quadrant homonymous hemianopsia (Fig. 4).

Comment.—The prolonged history of headache, nausea and vomiting, with a bilateral choking of the disks, presented the classical symptomatology of a brain tumor, but did not localize it. The history of a recent Jacksonian type of convulsion, involving the left side of the face and left arm, suggested a lesion in the right motor cortex. Neurological examination, however, did not show any demonstrable weakness of these muscles and there was not sufficient variation in the reflexes to be of any diagnostic value. The only finding of localizing value, therefore, was the right quadrantal hemianopsia which placed the lesion on the left side of the brain. Accordingly a diagnosis of left temporal lobe lesion was made. Exploration revealed a tense and bulging dura. A puncture needle was inserted and five cubic centimeters of a typical, yellow, gliomatous fluid was aspirated. The needle was reinserted in a backward direction and an ounce of darker fluid was obtained. After evacuation of the cyst the brain collapsed and there was no further evidence of tension on the dura. The operation was completed as a decompression. Following surgery, the patient improved temporarily, but when last heard from was rapidly failing.

CASE 3.—This patient was first seen in October 1928, on account of headache, nausea and vomiting. The headaches started rather abruptly in May 1928, coming on in the early morning, occurring in the frontal regions and consisting of sharp shooting pains which radiated back over the right temporal area into the occiput and neck. The headaches were fairly con-

stant in character, of moderate severity, and occurred almost daily. At the same time the patient noted periods of vertigo and on a few occasions she had fallen. In August 1928, nausea and vomiting began. Diplopia occurred about the same time and for three weeks before examination she was troubled with visual hallucinations in which she saw small animals such as squirrels, ducks, and cats on people's clothing as they approached her, as well as numerous colored (green, yellow, and blue) beads and flowers. During these three weeks there was also present incoördination and weakness of the muscles of the left hand and arm.

Physical examination revealed a poorly nourished woman of forty-five years of age who had a slight paresis of the whole left side of her body, including a weakness of the left side of her face. There were no disturbances of superficial or deep sensibility. There was a slight increase in the deep tendon reflexes on the left side with normal plantar reflex bilaterally. There was slight (grade I) incoördination in the left arm and leg, and her gait was ataxic.

Eye examination revealed large, evenly dilated pupils which did not react to light or accommodation. There was difficulty in moving the eyes upward and a marked bilateral nystagmus. Examination of the fundi showed a bilateral papilledema of four diopters with numerous linear hemorrhages and a complete left homonymous hemianopsia.

Comment.—Localization in this case was not so difficult as in the two previous ones. The left homonymous hemianopsia and the left motor weakness both pointed to a lesion of the right temporoparietal area. A decompression was done, exposing the dura over this region. The dura was not under any great degree of tension, but an exploring needle failed to reach the lateral ventricle. A definite resistance was encountered about three and one-half centimeters posterior to the rolandic area and about five centimeters below the surface of the cortex. Material removed for diagnosis proved to be choroid plexus. Operation was completed as a decompression.

The patient had a very stormy convalescence and died about five months later. Autopsy was not done.

CASE 4.—A retired watchmaker, forty-eight years of age, was first seen in November 1929 at the County Hospital, having been sent there from the Psycho-

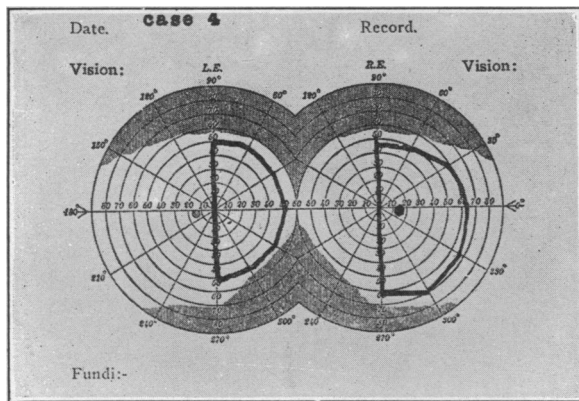


Fig. 5.—Visual field of patient reported in Case 4, showing complete left homonymous hemianopsia.

pathic Hospital to which he had gone on account of a definite personality change, associated with severe headaches and loss of vision.

Severe bifrontal headaches began rather suddenly in March 1929. These would come on at any time and usually lasted about twelve hours; for the past three weeks they had been associated with nausea and vomiting. For the past year the patient had been fatigued and tired out and would lie down and sleep for hours at a time. There occurred a definite character change and he became very self-centered, introspective, depressed, and gloomy. His vision had been poor for the past thirteen years and he was forced to give up his work as a watchmaker. Following a generalized convulsion nine years previously, the patient had occasionally noticed a revolving fan above his forehead. This hallucination was not present all the time, but had been much more prominent and persistent during the four weeks previous to examination. Ever since this convulsion he had been subject to falling spells which would come on suddenly at any time, without an aura, and were unaccompanied by any of the tonic, clonic or involuntary muscular movements common to epilepsy. On a few occasions he had noticed what seemed to be slight uncinat attacks.

Eleven years previously the patient had had a moderately severe case of pulmonary tuberculosis and spent two years in a sanatorium; the disease had then been pronounced arrested.

General physical examination revealed a thin undernourished adult male suffering severely from pain in the head but clearly oriented, of good mentality and perfectly coöperative. He had a moderate degree of dental and tonsillar sepsis; the chest showed some fibrotic changes in both apices characteristic of a tuberculous process of long standing. The heart findings were normal, and his blood pressure measured 114/78 millimeters of mercury. The blood count showed a slight secondary anemia with a 12,000 leukocyte count. Neurological examination showed no demonstrable muscular or sensory disturbances. The deep tendon reflexes in the upper extremities were slightly more active on the right than on the left. The knee and Achilles reflexes were hyperactive, plus three, bilaterally. There was a positive Oppenheim and Mendel-Bechterew reflex on the left and a positive Gordon reflex on the right. There was an incoördination on performing complicated movements with the right hand, but the left appeared normal. He presented a strongly positive Romberg and his gait was markedly ataxic. Eye examination showed the pupils to be slightly dilated, but they reacted promptly to light and accommodation. Ocular movements showed a paralysis of the left external rectus, but there was no nystagmus. Fundoscopic examination showed a bilateral acute choked disk of five to six diopters with

numerous hemorrhages and exudates and a complete left homonymous hemianopsia (Fig. 5).

Comment.—The headache, nausea, and vomiting, with choked disk confirmed the diagnosis of brain tumor, but the reflex changes were variable and inadequate to localize the lesion. The convulsive seizure and the uncinat attacks both pointed to temporal lobe involvement, but the left homonymous field defect localized the pathology on the right side of the brain.

A right subtemporal decompression showed the dura under marked tension with bulging and flattening of the cerebral convolutions. An exploratory needle failed to enter the lateral ventricle, but encountered a firm resistance deep in the posterior portion of the temporal lobe. Considerable bleeding was encountered and the wound closed as a decompression. Deep x-ray therapy was given, but the patient later died.

Autopsy revealed a degenerating cystic glioma deep in the posterior part of the temporal lobe and coming to the surface on the tentorium cerebelli (Fig. 6).

GENERAL SYMPTOMATOLOGY

Uncinat Attacks.—Ever since the time of Hughlings Jackson's original description of these peculiar uncinat attacks and the convulsive seizures that bear his name they have been considered evidence of temporal lobe pathology; judging from Cushing's series and from the cases reported here, however, they are much less frequent than are field defects. However, when they do occur they are a very significant finding, pointing to involvement of the temporal lobes although in themselves they do not distinguish which lobe is affected.

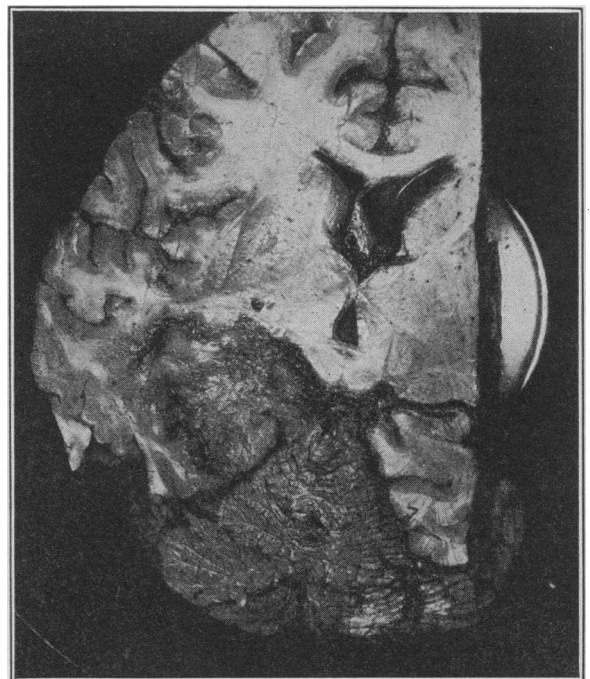


Fig. 6.—Degenerating cystic glioma found at autopsy in posterior portion of left temporal lobe of patient reported in Case 4.

Visual Hallucinations.—Visual hallucinations are very interesting and complicated phenomena and are usually considered a part of some such mental aberration as is seen in dementia praecox; on the other hand, however, they may be associated with such definite pathology as a tumor. These visual pictures may be nothing more than spots or bright lights or they may assume very clearly defined and vivid pictures that are presented time and again to the patient. Good examples of the latter are those found in the last two cases here presented. One patient (Case 3) saw little animals, flowers, and gayly colored beads, while the other (Case 4) saw very distinctly a fan revolving above his forehead off and on for a period of nine years previous to his present illness. He also had some type of uncinat attack, but these were poorly described and of an indefinite nature.

Inasmuch as the occipital cortex is regarded as the seat of our visual impressions, one would expect that such clear-cut and distinct pictures would point to occipital lobe involvement. This, however, is not necessarily true, as shown by the two cases here reported and by the fact that thirteen out of Cushing's series of fifty-nine cases of temporal lobe tumors presented visual hallucinations of a clearly defined nature. It is probable that any irritation of the visual fibers is transferred to the occipital lobe where it is interpreted or registered as a definite picture in much the same manner that a man will experience subjective sensations in his toes long after his leg has been amputated.

Convulsive Seizures.—Generalized convulsive seizures occurred in the patient reported in Case 1 just prior to his death. The slight Jacksonian convulsion in the second patient (Case 2), involving the left arm and face, remains unexplained and only served to confuse the diagnosis further. In Case 4 the patient had had one generalized epileptic type of seizure nine years previous to examination and this was followed by recurring falling spells in which he did not lose consciousness or have any muscular spasms. In general, convulsive seizures played a very small part in furthering the diagnosis of any of these cases.

CONCLUSIONS

1. The histories and physical findings in four cases of temporal lobe tumors have been studied and reported.

2. Localization of the lesion was possible in three cases by the field defects alone, neurological examination being inadequate. In the fourth case the tumor was sufficiently large to involve both temporal and parietal lobes, thus producing both field defects and positive neurological findings.

3. Clear-cut and vivid hallucinations do occur in temporal lobe pathology, as shown by two cases in this series.

4. Convulsive seizures, uncinat attacks and petit mal attacks, long regarded as characteristic symptoms of temporal lobe pathology, were infrequent or absent.

Rees-Stealy Clinic.

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DISCUSSION

HOWARD W. FLEMING, M. D. (384 Post Street, San Francisco).—Doctor Cave's paper emphasizes a most important and often neglected diagnostic procedure. Perimetry is time-consuming, but does not need elaborate apparatus or special training. Simple methods will reveal all gross field defects and, occasionally, such defects are the only signs of localizing value. The case reports given by Doctor Cave illustrate the value of perimetry in temporal lobe tumors. Gross lesions involving the visual tracts in the parietal and occipital lobes often give visual field signs of equal value, although they are substantiated more frequently by other symptoms and signs. Normal fields, in a patient with definite signs of increased intracranial pressure, are of great value from a negative standpoint, for the absence of defects in the fields of vision may localize a cerebral lesion to the frontal lobe or differentiate between pathologic change in the cerebrum and that in the cerebellum.

There are gross lesions of the brain, and particularly of the temporal lobe, other than tumors, in which perimetry may be very helpful. I refer especially to abscess and subcortical hemorrhage. The differential diagnosis between abscess of the temporal lobe and cerebral abscess is not always easy. If the patient is at all able to cooperate, repeated testing of the fields of vision may aid in an early localization of the pathologic changes. The enlargement of an abscess or tumor frequently can be estimated by the changes in the visual fields. Decrease in visual field defects is a valuable prognostic aid in cerebral abscess.

The case reports given in this paper illustrate the chronicity occasionally seen in brain tumors. The second patient gave a history of symptoms dating back at least four years. The patient cited in Case 4 very probably had been having symptoms referable to his tumor for at least thirteen years. These patients if seen soon after the onset of symptoms no doubt would have been diagnosed as cases of idiopathic epilepsy.

The medical profession is quite familiar with the classical signs of chronic intracranial pressure, *i. e.*, choked disc, nausea, vomiting, and headache. However, as our diagnostic ability improves, it will be just as reprehensible to delay diagnosis until the onset of this syndrome as it is at the present time to await abscess and peritonitis before diagnosing acute appendicitis. More and more tumors are being diagnosed and localized before marked intracranial pressure supervenes. Unexplained convulsions warrant the most thorough investigation, including encephalography or pneumoventriculography.

The fatal outcome of the four cases reported in this paper would seem to confirm a common impression regarding brain tumors. Though it is true that, as a group, gliomas do not offer so good a prognosis as do endotheliomas, they are not the entirely hopeless lesions they formerly were believed to be. Recent work by Cushing, Bailey, Penfield, and others, has emphasized that gliomas range from the most malignant to the benign. It is no longer sufficient to tap a cyst

and be content with a decompression. Particularly in the slow-growing tumors, removal of the mural tumor mass will effect a remission of many years, if not a permanent cure.

Doctor Cave has presented a most interesting and opportune reminder of the symptoms and signs of temporal lobe lesions. A visualization of the optic tracts and the use of perimetry in obscure head cases will assist materially in an early and correct diagnosis.

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CARL W. RAND, M. D. (534 Pacific Mutual Building, Los Angeles).—The importance of routine perimetric studies in all cases of suspected brain tumor is to be emphasized. Negative, as well as positive, findings are of value. In temporal lobe lesions a notching of the homonymous color fields is found much earlier than a constriction in the form field proper. Often it is not only the earliest, but the only localizing sign we have, especially if the lesion is in the right temporal lobe. Frequent perimetric studies will often indicate the increasing size of the lesion until a complete homonymous hemianopsia may be reached. Usually signs of pyramidal tract involvement appear relatively early which, together with uncinate gyrus attacks, sometimes clinch the diagnosis. I have been impressed with the character of visual hallucinations found in several patients with temporal lobe tumors. These were very vivid, always in the blind field, and so discrete that the patient would point to them and describe them. One described a yellow canary bird, a second a blue cup and saucer, and a third blue and red barnacles on the bottom of a ship. Occipital lobe hallucinations, on the contrary, are usually more bizarre. They may take color or light forms in the blind field, but seldom assume the figures of animals, people, or other objects. In temporal lobe hallucinations the object may or may not be in motion. I believe these hallucinatory objects are almost always something with which the patient has been familiar in his past experience. Careful leading questions may be necessary to bring out a history of visual hallucinations, as they may be infrequent and fleeting early in the disease, and the patient may not place any importance on them unless his attention is directed to them.

SOME PROBLEMS IN MEDICAL ECONOMICS*

By CARL R. HOWSON, M. D.
Los Angeles

IT is a wise custom which prompts us at the close of the year to take stock of our accomplishments during the preceding twelve months, to see how far we have advanced and to look at what lies ahead of us.

During the past year your Board of Councilors has held one informal meeting, two special meetings, and eleven regular meetings for the transaction of business. With the increase in association members in recent years there has come augmentation of work, and on more than one occasion the sessions have continued until close to midnight. Much of a constructive nature has been accomplished. I desire especially to mention the work of your committees, whose reports you have heard tonight. Without their generous and efficient aid it would be quite impossible for your board to accomplish its aims. To the Board of Trustees, the Board of Councilors, and the various committees, the thanks of the Association are

due for their untiring efforts on behalf of the common weal.

I desire at this time to express my appreciation of the constructive work and coöperation of my fellow officers, and also of the opportunity which has been afforded me of serving you during the past year.

In the main the work has been pleasant, and I shall long cherish the memory of the most enjoyable associations which have fallen to my lot in the Council and elsewhere. It is a source of great satisfaction to give place to a successor of such high ability and standing, and having such unanimous support, as Doctor Molony, for whom I prophesy the greatest year in the history of the Association.

For an organization of this type to function to its full efficiency it is necessary that it be permeated by a spirit of fraternalism, of service to the common cause, of willingness to work and to sacrifice, if necessary, for our best interests, realizing that so long as we preserve our ideals our best interests will be indissolubly tied up with the interests of the commonwealth. To this end all our activities should be coördinated.

The changing conditions of the past few years have made desirable certain changes in our by-laws, particularly in those sections relating to initiation fees, to the telephone exchange, to the terms of office of councilors, and to the regulations governing the election of officers.

One year ago certain amendments to the by-laws were submitted to the membership, but in spite of urgent appeals, lack of interest on the part of the members was such that it was not possible to secure the necessary two-thirds majority vote. It is hoped that during the coming year a more complete revision will be undertaken, and, if and when the amendments are submitted to you, I bespeak your interest and prompt vote.

If we are to profit by our opportunities, we must, as individual members of the Association, take sufficient interest to be informed regarding its activities and aims. It is the duty of the officers and councilors to supply as much information to the membership as is practicable. The Bulletin is the medium through which this must come, and, under the able editorship of our secretary, its columns this year have reflected to an increasing degree the appreciation on the part of your officers and boards of their responsibility and opportunity in this respect.

MEDICAL ECONOMICS

In 1924 the secretary of the American Medical Association stated that "the one great outstanding problem before the medical profession today is that involved in the delivery of adequate scientific medical service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life." How much more is this true today? And to this I would add a second problem—the restoration in the minds of the public of the confidence and respect which were ours a generation ago.

It is stated on the basis of such very superficial surveys as have been made that not over half the population in Southern California patro-

* Address of the retiring president read before the Los Angeles County Medical Association on December 17, 1931.